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CODEX COMMITTEE ON FOOD ADDITIVES
Report of the sixth session
15-22 October 1969, Arnhem, The Netherlands

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 - (g) Examination of information supplied on chlorates in cheese (para 53)
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 - (m) Priority list (para 115, Appendix XVII)
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 - (o) Re-evaluation of antioxidants (Appendix IX, page 45)
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3. Codex Committee on Cocoa Products and Chocolate
 - (a) Corrigendum to list of alkalizing agents (para 16, Appendix VII)
 - (b) Amendment of 'flavours' in Standard for Cocoa Products and Chocolate (para 17, Appendix VII)
 - (c) Confirmation of proposed levels of contaminants; special consideration of maximum level for lead (para 18)
 - (d) Confirmation of maximum level for phosphoric acid (Appendix VII, page 39)
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 - (b) Clarification of artificial flavours in the Standard for Canned Fruit Cocktail (para 48)

- (c) Reconsideration of the maximum level for tin (para 50)
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INTRODUCTION

1. The Sixth Session of the Codex Committee on Food Additives was held in Arnhem by courtesy of the Government of the Netherlands, from 15-22 October 1969, under the Chairmanship of Professor Dr. M.J.L. Dols. The session was attended by delegates from the following countries: Australia, Austria, Belgium, Canada, Cuba, Denmark, Finland, France, the Federal Republic of Germany, Ghana, Italy, Japan, Morocco, the Netherlands, Poland, Portugal, Sweden, Switzerland, Thailand, United Kingdom, U.S.A. and Yugoslavia, and observers from Czechoslovakia and South Africa. Representatives of FAO and WHO and observers from the following international organizations were also present: Council of Europe, European Economic Community, Federation Internationale des Industries et du Commerce en Gros des Vins Spiritueux Eaux-de-Vie et Liqueurs, FEFAC, International Organization for Standardization (ISO), International Union of Nutrition Sciences (IUNS), Institut Europeen des Industries de la Pectine, Federation Europeenne des Fabricants d'Adjuvants pour la Nutrition Animale (FEFANA), Office International du Vin (OIV), Bureau de Liaison des Produits Aromatiques, World Association of Veterinary Food Hygienists. The list of participants is attached as Appendix I.
2. The Provisional Agenda (CCFA/69/1) was adopted without re-arrangement of the order of items of business.

ENDORSEMENT OF FOOD ADDITIVE PROVISIONS IN CODEX COMMODITY STANDARDS

3. The Committee had before it working papers CCFA/69/2, Parts I and II, as well as Part III which was distributed during the session. The decisions of the Committee are recorded in Appendices II to XVII to this Report. During the discussion of the above documents the following points were made and decisions reached:

FOOD ADDITIVES IN FRUIT JUICES (see Appendix II)

Tin (Sn)

4. Some delegations were of the opinion that a maximum limit of 150 mg/kg was sufficient to cover the actual residues found in these commodities. It was pointed out that the level of 250 mg/kg might not be required for all types of fruit juices and nectars, and that the maximum level of tin should be reconsidered in the light of the requirements of the individual commodities covered by the standards. The Committee agreed that these remarks be brought to the attention of the Codex Committee on Fruit Juices.

Metal contaminants

5. The Delegation of the Federal Republic of Germany was of the opinion that the limits for zinc and other metals in these products should include residues resulting from all sources, such as the use of zinc-containing pesticides.

Malic acid

6. It was noted that the Joint FAO/WHO Expert Committee on Food Additives had removed the restriction on the D(-) isomer and that the ADIs of both enantiomorphs were subject only to limitation by good manufacturing practice.

Clarifying agents

7. The Committee took note of the decision of the Codex Committee on Fruit Juices to include other clarifying enzymes in its previous provision for "pectolytic and/or proteolytic enzymes" and also noted that the Joint FAO/WHO Expert Committee on Food Additives would examine this group of substances at a future session. It was brought to the Committee's attention that the International Wine Office (OIV) had elaborated specifications for some of the clarifying agents appearing in Codex Standards for fruit juices and was in the process of establishing specifications for others appearing in those Standards. The Committee agreed that these specifications should be referred to the Joint Expert Committee.

Mineral impurities, insoluble in 10% HCl

8. The Committee agreed that this provision would be acceptable from a safety point of view if it comprised only impurities such as sand and residues of clarifying agents permitted in the relevant Codex Standards.

FOOD ADDITIVES IN MEAT PRODUCTS (see Appendix III)

Nitrates and nitrites

9. The Committee noted that, in compliance with its previous request, the level of nitrate had been reduced to 500 mg/kg. Concern was expressed regarding the possible formation of nitrosamines in these products. It was pointed out that the identity and nature of the nitrosamines and their possible presence in foods were not known in sufficient detail at present to enable a toxicological evaluation to be made.
10. The Committee noted that work on this problem was in progress in a number of countries and agreed that the provisions for nitrates and nitrites could be only temporarily endorsed pending an examination by the Joint FAO/WHO Expert Committee on Food Additives of the possibility of nitrosamine formation.

Artificial flavourings, essences and extracts (to be specified)

11. The Committee postponed the consideration of these additives pending a clarification as to which artificial flavourings were proposed for use and the maximum levels for these substances (for a full discussion on flavourings see paragraphs 22-25).

Cyclamates

12. The Committee received a communication from the Chairman of the Codex Sub-Committee on Processed Meat Products concerning levels of use of this substance in Canned Hams. The Committee agreed that it needed specific proposals for maximum levels for cyclamates before a decision could be taken on this matter. It was noted that research work was in progress on this additive. ^{1/}

^{1/}

Note by the Secretariat:

During the session it was brought to the Committee's attention that, following recent reports on the possible carcinogenicity of this substance, a number of countries had either banned or severely restricted the use of cyclamate as a food additive or were contemplating such an action.

FOOD ADDITIVES IN QUICK FROZEN FOODS (see Appendix IV)

Natural flavourings and their identical synthetic equivalents

13. The Committee temporarily endorsed the natural flavourings and their identical synthetic equivalents. For a full discussion of the approach adopted in this respect the reader is referred to paragraphs 22-25 of this report.

FOOD ADDITIVES IN FUNGUS PRODUCTS (see Appendix V)

14. The Committee was informed about the decisions of the 1969 session of the Coordinating Committee for Europe concerning food additives (see ALINORM 70/19). It noted that the provision for minimum 1% by weight lactic acid in Fermented Fungi was an 'essential quality factor' intended to cover lactic acid formed during the fermentation process and that this minimum level was required for the proper stability of the product. It also took note of the fact that the thirteenth meeting of the Joint FAO/WHO Expert Committee on Food Additives had removed the restriction on the D(-) isomer of lactic acid and that both enantiomorphs were subject only to limitation by good manufacturing practice.

FOOD ADDITIVES IN SUGARS (see Appendix VI)

15. It was noted that the Joint FAO/WHO Expert Committee on Food Additives could not develop a specification for sodium calcium aluminosilicate for lack of adequate data, but that specifications had been prepared for sodium aluminosilicate and calcium silicate. Since silicates had been toxicologically evaluated as a group, the Committee agreed to insert both the above aluminosilicate salts in the list of anticaking agents pending the establishment of specifications for sodium calcium aluminosilicate.

FOOD ADDITIVES IN COCOA PRODUCTS AND CHOCOLATE (see Appendix VII) Alkalizing agents

16. The Committee noted that ammonium carbonate and magnesium hydrogencarbonate were available commercially as the mixed carbonate/hydrogen carbonate salts and agreed to amend the list of alkalizing agents accordingly.

Flavours, other than those which would imitate natural chocolate or milk flavour.

17. There was a general discussion on the subject of flavorings, in connection with the standards for fats and oils (see paragraphs 22-25); it was agreed that the conclusions reached in these paragraphs also applied to the flavours in Cocoa Products and Chocolate. The Committee adopted the wording given in paragraph 24 and agreed that the levels of flavours used were limited by good manufacturing practice.

Contaminants (Cu, As, Pb, Fe)

18. The Committee noted that the limits for these contaminants were subject to review by the Committee on Cocoa Products and Chocolate and decided to postpone their consideration. A number of delegations were of the opinion that the limits for lead appeared to be unduly high. The Committee requested that the question of the limits for lead be given special consideration by the Committee on Cocoa Products and Chocolate.

FOOD ADDITIVES IN FISH AND FISHERY PRODUCTS (see Appendix VIII)

Sodium glutamate

19. Since the Joint FAO/WHO Expert Committee on Food Additives had not reached a conclusion regarding the safety of this additive, the Committee agreed to postpone a decision pending further information.

Carotene

20. It was noted that no specification was available from the Joint FAO/WHO Expert Committee on Food Additives for the natural pigment carotene, and that this substance had not been examined toxicologically by that Committee. It was agreed that beta-carotene, which had been cleared by the Joint Expert Committee could be endorsed. It was recommended that the Codex Standard on Canned Shrimps and Prawns be amended accordingly.

FOOD ADDITIVES IN FATS AND OILS (see Appendix EC)

Curcumin

21. It was noted that the Joint FAO/WHO Expert Committee on Food Additives had established a temporary ADI for the natural substance turmeric, but that no toxicological or chemical information had been available to the Joint Expert Committee to evaluate curcumin. In view of the fact that curcumin was a component of turmeric, the Codex Committee on Food Additives agreed to a temporary endorsement.

General discussion on natural and other flavours

22. In discussing the natural flavours and their identical synthetic equivalents the Committee agreed to follow the following principles:
 - (a) Natural flavours and their identical synthetic equivalents would be temporarily endorsed, unless an ADI had been established for a particular substance, in which case a full endorsement of that substance could be made;
 - (b) If a particular natural flavour and its synthetic equivalent were known to represent toxic hazard, such substance would be excluded from the endorsed provision.
23. As regards flavours other than natural flavours and their identical synthetic equivalents, the Committee agreed that a toxicological examination of these substances by the Joint FAO/WHO Expert Committee on Food Additives was necessary. However, the Committee agreed that, awaiting a toxicological examination of these substances by the Joint FAO/WHO Expert Committee on Food Additives, these substances could be temporarily endorsed insofar as they appeared on the Council of Europe list or other official lists. The Committee decided that those substances, which will be given ADIs or temporary ADIs by the Joint Expert Committee, will stand endorsed or temporarily endorsed, as the case may be, without the need for further consideration by this Committee. The Representative of the Council of Europe indicated that lists of proposed permissible natural and synthetic flavours would be made available to the Codex Committee on Food Additives in the near future.

Natural flavours and identical synthetic flavours; other synthetic flavours

24. The Committee agreed to the following wording to be inserted in the section on food additives of the General Standard for Fats and Oils, the individual Standards for Oils and the Standard for Margarine: "natural flavours, as defined in the Codex Alimentarius, and their identical synthetic equivalents, and synthetic flavours appearing in the permitted Codex list".
25. It was agreed that a definition of "natural flavours" was required and the Committee decided to examine, at its next session, the definition proposed by the Council of Europe. As regards the limitation for the above flavouring substances, the Committee agreed with the wording used by the Commission for fats and oils (see paragraph 146, ALINORM 69/67) and also agreed that, in the case of the Standard for Margarine, the limitation should be on the basis of good manufacturing practice.

Esters of mono- and disaccharides with fatty acids

26. In view of the fact that the Joint FAO/WHO Expert Committee on Food Additives had evaluated only the sucrose esters of fatty acids (including sucroglycerides) the Committee agreed that these substances should replace the existing provision in the Standard for Margarine and the General Standard for Fats and Oils.

Ascorbyl palmitate and stearate

27. In view of the similarity between these two substances, the Committee agreed that an overall limit of 200 mg/kg should apply singly or in combination.

Citric acid and its sodium salt

28. The Committee noted that the Codex Committee on Fats and Oils had added sodium citrate to the provision for citric acid, which had been previously endorsed, and endorsed this addition.

Tartaric acid and its salts

29. It was agreed that the salts of tartaric acid should be limited to those evaluated by the Joint FAO/WHO Expert Committee on Food Additives, i.e. the sodium and the sodium-potassium salts of the L (+) acid.

Mono isopropyl citrate

30. It was noted that the specification and ADI referred to the commercial product which was a mixture with mono- and diglycerides and agreed that the relevant Standards for Fats and Oils and Margarine be so amended.

Dimethyl polysiloxane

31. In order to clarify the provision for the above additive and its mixture with silicon dioxide, the Committee agreed to the following text: "Dimethyl polysiloxane with or without silicon dioxide, 10 mg/kg".

Solvent residues

32. It was noted that the Standard for Refined Residue Olive Oil contained a "none" provision for solvent residues, as detected by the method of Watts and Holswade (1967. J. Assoc.Off.Agr.Chem. 50-717) and that this method was sensitive to 10

ppm hexanes, heptanes, benzene and toluene. It was pointed out that the actual levels of solvents found in this oil were far below 10 ppm and that, therefore, a method of analysis of greater sensitivity should be employed.

33. It was pointed out that the above method was subject to endorsement by the Codex Committee on Methods of Analysis and Sampling. The Committee was of the opinion that the whole question of solvent residues in extracted fats and oils should be given consideration. It was noted that the Joint FAO/WHO Expert Committee on Food Additives had examined hexane and that, while traces of this solvent would not represent a hazard to health, impurities found in hexane may be of toxicological significance.
34. The Committee, therefore, postponed the consideration of the provision for solvent residues in Refined Residue Olive Oil pending further information from the Codex Committee on Fats and Oils and the Joint FAO/WHO Expert Committee on Food Additives (see paragraphs 84-85).

FOOD ADDITIVES IN PROCESSED FRUIT AND VEGETABLES (see Appendix X)

Malic and lactic acids

35. The Committee noted that the Joint FAO/WHO Expert Committee on Food Additives had removed the restriction on the D isomers for these acids at its thirteenth meeting and that both enantiomorphs were subject only to limitation by good manufacturing practice.

Calcium chloride or other calcium salts

36. The Committee agreed that the Committee on Processed Fruit and Vegetables should specify the "other calcium salts" proposed for use. It was noted that the Standard for Canned Tomatoes had reached Step 9 of the Procedure for the Elaboration of Codex Standards and the Committee, therefore, agreed that the calcium salts of appropriate acids in Codex lists of Food Additives could be endorsed provided that such salts were specified in the Standards.

Modified starch

37. The Committee endorsed or temporarily endorsed, as appropriate, the modified starches which had been cleared by the Joint FAO/WHO Expert Committee and which appear in the Codex list (see Appendix X).

Vegetable gums

38. It was agreed that the term "vegetable gums" (carbohydrate stabilizers) be deleted and those substances inserted which were cleared by the Joint FAO/WHO Expert Committee on Food Additives, e.g. arabic gum, carrageenan, furcelleran and guar gum.

Alginates

39. The Committee agreed that the term "alginates" referred to the salts for which specifications had been drawn up by the Joint FAO/WHO Expert Committee on Food Additives, viz. ammonium, calcium, potassium and sodium salts.

Monosodium glutamate

40. It was noted that monosodium glutamate had been endorsed in Canned Green and Wax beans, Canned Sweet Corn, Canned Asparagus, Canned Green

Garden Peas and Canned Mushrooms at a previous session. It was also noted that the Joint FAO/ WHO Expert Committee on Food Additives would be reviewing the results of new toxicological investigations in the near future.

41. It was agreed that the provision for monosodium glutamate in the Standards at Step 9 were to be still regarded as endorsed, while this was not to be the case with the Standards at Step 6. It was understood that the position with regard to monosodium glutamate might have to be reviewed in the light of the future evaluation of the Joint Expert Committee.

Nisin

42. The Committee was informed that Nisin had been deleted from the Standards for Canned Green Garden Peas and Canned Mushrooms by the Codex Committee on Processed Fruit and Vegetables; similarly nisin was deleted from Canned Green and Wax Beans by the fifth session of the Codex Alimentarius Commission (see paragraph 173, ALINORM 68/35). The Committee took note of the fact that nisin had been given an ADI by the Joint FAO/WHO Expert Committee on Food Additives.

Natural flavourings

43. The Committee agreed to proceed in the same manner as in the case of the Standards for fats and oils. A full discussion of this problem is given in paragraphs 22-25.

Colours

44. It was noted that the Joint FAO/WHO Expert Committee on Food Additives had given ADIs or temporary ADIs to a number of additional food colours. The Committee reconsidered its previous decisions with regard to the various Standards for Processed Fruit and Vegetables (see Appendix X).

Sulphur dioxide

45. It was pointed out that the level of 2000 mg/kg sulphur dioxide in raisins referred to a treatment level and that it may not necessarily represent actual residues in the finished product. A number of delegations were of the opinion that this level was unduly high. The Committee agreed to refer this question to the Codex Committee on Processed Fruit and Vegetables with the request that the maximum level be reconsidered in the light of actual residues found in the finished product following good technological practice.

Mineral oil

46. A number of delegations were of the opinion that the level proposed (0.5% by weight) appeared to be too high. It was noted that the Codex Committee on Processed Fruit and Vegetables had proposed specifications for the various mineral oils used. The Committee postponed a decision concerning the endorsement of mineral oil in raisins and requested the Joint FAO/WHO Expert Committee on Food Additives to study this matter at the earliest possible opportunity.

Brilliant Black BN

47. The Committee was informed that no ADI was given to this colour. The Delegation of Sweden drew the Committee's attention to iron lactate as an alternative to Brilliant Black BN.

Artificial flavourings

48. The Committee requested the Codex Committee on Processed Fruit and Vegetables to specify the artificial flavours in the Standards for Canned Fruit Cocktail. For the discussion of the problem of natural flavours and other flavours the reader is referred to paragraphs 22-25.

Cupric sulphate, stannous chloride

49. The Committee postponed a decision on these additives pending the establishment of specifications by the Joint FAO/WHO Expert Committee on Food Additives.

Tin

50. The Committee endorsed a level of 150 mg/kg and requested the Commodity Committee to consider the reduction of the level of 250 mg/kg to 150 mg/kg in the respective Standards.

FOOD ADDITIVES IN MILK AND MILK PRODUCTS (see Appendix XI)

Anatto, carotene, turmeric (curcumin)

51. The Committee noted that the above food colours were being proposed as an amendment to the Standard on Butter. The Committee wished to draw the attention of the Codex Committee on Milk and Milk Products to its decisions concerning these food colours (see paragraphs 20, 21 and Appendix XVI).

Cupric sulphate

52. The Committee postponed a decision concerning the endorsement of this additive pending the elaboration of specifications by the Joint FAO/WHO Expert Committee on Food Additives.

Sodium and potassium chlorates

53. The Committee noted the decisions of the Joint FAO/WHO Expert Committee on Food Additives that the above substances were not safe as food additives. It was pointed out that chlorates were degraded in cheese to chlorides and that, therefore, there may not be a problem from a health hazard point of view. In this connection it was pointed out that chlorates may react with various components of cheese forming undesirable substances. The Committee requested the Joint FAO/WHO Committee of Government Experts on the Code of Principles concerning Milk and Milk Products to provide information on the problem stated above, and requested the Joint FAO/WHO Expert Committee on Food Additives to examine such information. It was decided to postpone a decision with regard to endorsement.

Sodium and potassium nitrates

54. The Committee's attention was drawn to the possibility of nitrates concentrating in the whey during the preparation of the curd. For this reason the limit of 200 mg/kg milk used may not be admissible since the whey is used for the preparation of other food products. It was agreed that special attention be given to this problem by the Committee of Government Experts. The Committee again discussed the question of the formation of nitrosamines in cheese and noted a paper prepared by Dr. J.G. van Ginkel of the Rijksznelstation, Leiden, the Netherlands. It was decided to postpone the endorsement of nitrates in cheese,

pending the clarification of residues in whey cheeses and the recommendations of the Joint FAO/WHO Expert Committee on Food Additives on the question of nitrosamines.

Vegetable gums

55. It was noted that amongst the various vegetable gums (carbohydrate stabilizers) proposed in the Standard for Cottage Cheese, only guar gum, carrageenan and furcelleran were given ADIs by the Joint FAO/WHO Expert Committee on Food Additives.

Phosphates and phosphoric acid

56. The Committee decided to postpone the endorsement of sodium dihydrogen phosphate and disodium hydrogenphosphate in the various individual cheese standards pending the establishment of maximum levels by the Committee of Government Experts on Milk and Milk Products.
57. The Committee of Government Experts on Milk and Milk Products was requested to specify limits for phosphoric acid in the Standards for Cottage Cheese and to re-examine the level of 4% in the Standard for Processed Cheese Products.
58. The Committee decided to postpone the endorsement of the various salts of mono-, di- and polyphosphoric acids used as emulsifying agents in the Standards for Processed Cheese Products and requested the Committee of Government Experts to reconsider the levels proposed.

Sodium and calcium salts of hydrochloric, citric, carbonic, phosphoric and polyphosphoric acids

59. With reference to the Standards on Condensed Milk and Milk Powder, the Committee noted that, unlike the commodities listed in paragraph 60 below, no reference was made to the linearity or chain length of the polyphosphoric acids. It was understood that the previous endorsement of the above additives would stand, unless the present limits were increased.
60. As regards the above additives in the Evaporated Milk, High Fat Milk Powder and Cream Powders Standards, it was pointed out that the consumption of evaporated milk, containing 0.5% phosphates, by infants may result in the ADI being exceeded. The Committee was of the opinion that this problem could be over come by a declaration on the label indicating that such evaporated milk was not suitable for use in the preparation of foods for infants.

Gallates, BHT and BHA

61. The Committee noted that the level of 200 mg/kg in Butter Fat had not been reduced by the Committee of Government Experts as requested by the fourth session of this Committee. In view of the fact that butter fat was not intended for direct consumption or for use in reconstituted milk or milk products, the Committee agreed to endorse the above anti-oxidants in this product. It was agreed, however, that the gallates should not exceed 100 mg/kg and any combination of gallates with BHT and/or BHA not to exceed 200 mg/kg.

Sorbic and propionic acids

62. A number of delegations stressed that the proposed levels for sorbic and propionic acids were too high. It was pointed out that cheese may contain propionic acid as a result of fermentation and that the levels of the preservative

needed depended on pH. The Committee agreed that the matter be referred to the Committee of Government Experts on Milk and Milk Products for reconsideration.

Benzoyl peroxide

63. The Committee noted that the above substance had been cleared by the Joint FAO/WHO Expert Committee on Food Additives as a flour-treatment agent. It was pointed out that benzoyl peroxide would be degraded to benzoic acid during the manufacturing process but that, being a potent oxidizing agent, interaction with components of cheese was possible. The Committee of Government Experts on Milk and Milk Products was requested to examine this problem and to provide information on any possible residue of unchanged benzoyl peroxide in cheese. The Joint FAO/WHO Expert Committee on Food Additives was requested to examine such information.

GENERAL CONSIDERATIONS CONCERNING PHOSPHATES AND PHOSPHORIC ACID

64. The Committee noted that the Joint FAO/WHO Expert Committee on Food Additives had established separate acceptable daily intakes (ADI) for phosphoric acid and phosphates, including poly-phosphates (expressed as total phosphorus from all sources per kg body-weight per day). The various provisions for phosphoric acid were, therefore, only temporarily endorsed, where appropriate, pending clarification of this matter by the Joint Expert Committee.
65. As regards phosphates (mono-, di- and poly-) the Committee examined the total dietary intake of phosphorus on the basis of a paper prepared by WHO (see paragraphs 68-72). The Committee noted that the intake of phosphorus resulting from the use of these food additives did not appear to approach the ADI. However, since the ADI also covered the phosphorus naturally present, the calculation did not enable a definite conclusion to be reached.

GENERAL RESERVATION BY DELEGATIONS

66. The Delegations of Belgium, the Federal Republic of Germany, France, Italy, Poland, Portugal and Switzerland stated that, in their opinion, a number of additives requested by Codex Commodity Committees were not in keeping with the General Principles for the Use of Food Additives (ALINORM 69/12, Appendix II). In order to protect the consumer from the unnecessary use of additives or from the danger of approaching the limit of the ADI, especially in cases where no specific intake data were available, these additives should not be used. Being aware of the fact that, for formal reasons, the additives would be endorsed or temporarily endorsed by this Committee, their statement was merely to indicate that a number of additives would not be accepted by their Governments.

TECHNOLOGICAL JUSTIFICATION FOR THE USE OF FOOD ADDITIVES

67. A number of delegations expressed concern regarding the lack of technological justification for a number of food additives. The Committee recalled its decision made at its fourth session that it would rely on the recommendations of Codex Commodity Committees in this respect. It was stressed that in proposing food additives in Codex Standards, Codex Commodity Committees should pay due attention to the technological justification for the use of the proposed food additive. The Committee agreed that, in principle, it was necessary to indicate

maximum levels of use for those additives for which an ADI had been established.

ESTIMATION OF THE INTAKE OF FOOD ADDITIVES

68. After consideration of Agenda item 3 (Endorsement of food additive provisions in Codex Standards) the Committee proceeded with the examination of the paper (CCFA 69/12) entitled "Estimate of Food Additive Intake": 1968-69 Computerized Calculation of Potential Food Additive Intake" prepared by the Food Additive and Health Statistical Methodology Units of WHO (Rapporteur Dr. C. Agthe, WHO).
69. Some delegations pointed out that it would be useful to show in the graphs of 'potential food additive intake' the average food additive intake derived from total diet studies or derived from data on the "disappearance" of food additives, wherever such figures were available. Countries having such information were asked to send it to Dr. C. Agthe, Food Additives Unit, WHO, Geneva. It was also stated that for some additives it would be important to show the intake of the substance from natural sources.
70. The Committee agreed that in future the additives investigated from the point of view of their potential intake should not be classified in groups but that the additives should be listed in descending order of their intakes in relation to the corresponding ADIs. Such lists resulting from future calculations of the potential food additive intake should be preceded by the following statement to ensure that these figures and the order of listing of these additives would not be misinterpreted:
- "The figures listed below are the potential intakes of these substances as food additives irrespective of their possible natural occurrence. These figures have reference to the corresponding ADIs and are subject to revision on the basis of new data and decisions of the Joint FAO/WHO Expert Committee on Food Additives."
71. In view of the fact that the potential intake of phosphoric acid in relation to its ADI was shown to be much higher than that of phosphates, the Joint FAO/WHO Expert Committee on Food Additives was asked to consider whether it would be possible to include phosphoric acid into the ADI for phosphates (expressed as total phosphorus intake). With regard to tartaric acid, glycerides esterified with diacetyl tartaric acid and polyglycerol esters of fatty acids, the potential intakes were shown to exceed the ADI on the basis of the proposed Codex provisions and other possible uses. The Committee decided to bear this fact in mind in considering further endorsement of these additives.
72. The Committee recommended the following future work:
- (a) Governments of Member Countries should be encouraged to undertake detailed food intake surveys including the consumption patterns for foods likely to be consumed in excessive amounts; ^{1/}
 - (b) Countries where potential food additive intakes exceed the ADIs and/or where additives are used in food items consumed excessively by certain segments of the population, should enquire of their food industry as to the actual levels of use of these additives in the foods concerned; ^{1/}
 - (c) WHO, in collaboration with FAO, should undertake further computerized calculation of the potential intake of:

- (i) those food additives, the intake of which approach or exceed the ADIs, employing data regarding their use (supplied by countries as a result of enquiries from their food industries) and further information on food consumption patterns;
 - (ii) further additives for which provisions have been made in Codex Standards since 1967;
 - (iii) additives in other countries for which data are available.
- (d) FAO and WHO should take steps to obtain information on the intake of phosphates, nitrates and nitrites from natural sources.
- (e) This paper, revised along the lines recommended above, should be made available to a future meeting of the Joint FAO/WHO Expert Committee on Food Additives for discussion.

^{1/} Information to be sent to Dr. C. Agthe, Food Additives Unit, WHO, Geneva.

73. The Committee unanimously decided to put on record its appreciation of the paper presented and to emphasise the need to continue with this work. In view of the envisaged expansion of the workload involved, the Directors-General of FAO and WHO were requested to provide additional support to this work.

CONSIDERATION OF LISTS OF FOOD ADDITIVES

General discussion concerning Lists of Food Additives

74. The Committee discussed the meaning of acceptance of Codex Standards in relation to lists of food additives. As regards the list of flour-treatment agents, it was recognized that there may be difficulties in accepting such a list at Step 9 of the Procedure in view of the wide divergences in the technological application of these additives. It was suggested that one approach might be to treat each flour-treatment agent as a separate Codex Standard. The Committee was of the opinion that this approach would not be feasible since the levels proposed were treatment levels and, therefore, not enforceable on the finished product.
75. Another approach would be to proceed only to Step 8 and regard the list of flour-treatment agents as a recommended list of flour-treatment agents safe for use at the treatment levels indicated. The Committee agreed that the elaboration of permitted lists of food additives, which had been examined by the Joint FAO/WHO Expert Committee on Food Additives, should be continued and such lists should be published by the Codex Alimentarius Commission.
76. The Committee did not come to an agreement as to which of the above procedures to adopt and decided to discuss this problem at its next session.

Flour-Treatment Agents (see Appendix XII)

77. The Committee had before it a document, prepared by the Secretariat, containing comments received from governments at Step 6 of the Procedure (CCFA/69/3). There was considerable discussion concerning the technological need for the use of a number of flour-treatment agents. The Delegations of Belgium, France, the Federal Republic of Germany, Italy, Poland, Portugal and Switzerland objected to the use of flour-treatment agents except ascorbic acid. It was agreed in principle that, when considering the technological need for individual flour-treatment agents, the needs of countries with highly mechanized industry should be considered.

78. In respect of sulphur dioxide, some delegations were of the opinion that the present "no residue" provision was not feasible and that a finite tolerance should be set for this substance. It was pointed out that residues of sulphur dioxide were found in the final product (e.g. biscuits, bread, etc.) when sulphites were used as dough-treatment agents.
79. Upon the request of a number of countries, the Committee agreed to include new flour-treatment agents in the list. It was also agreed to increase the treatment levels of potassium bromate and benzoyl peroxide to 50 mg/kg. The Committee decided to request government comments once more at Step 6 of the Procedure (see Appendix XII) and to refer the additional flour-treatment agents and the proposed increased treatment levels to the Joint FAO/WHO Expert Committee on Food Additives.
80. The question was raised whether a separate list of additives used in the treatment of dough should also be drawn up. The Committee agreed that international trade in dough was insignificant and that there was no need to embark on work in this field.

Methods of Analysis for Flour-treatment Agents

81. The Committee discussed a paper prepared by the Delegation of the U.S.A. containing proposed methods of analysis for flour-treatment agents (CCFA 69/4). The Committee decided to refer the paper prepared by the U.S.A. Delegation to the Codex Committee on Methods of Analysis and Sampling for consideration after the author country had extended the paper to provide for methods of analysis for the proposed additional flour-treatment agents.

Anti-Caking Agents (see Appendix XIII)

82. The Committee had before it a paper (CCFA/69/5) prepared by the Secretariat containing the list of anti-caking agents which had been referred to the Joint FAO/WHO Expert Committee on Food Additives (see Appendix V, ALINORM 69/12) and also containing government comments received prior to the Fourth Session. It was agreed that the anti-caking agents evaluated by the Joint Expert Committee, including sodium calcium aluminosilicate, be sent to governments for comment at Step 3 of the Procedure (see Appendix XIII). Governments were requested to indicate any further anti-caking agents they wished to add to the list (see previous list, Appendix V, ALINORM 69/12).

Carrier Solvents (see Appendix XIV)

83. The Committee considered a document prepared by the Delegation of Switzerland on solvents for food colours and flavourings (CCFA/69/6). In discussing these solvents the Committee agreed not to consider solid or semi-solid substances at this time. The Committee also agreed not to consider substances which were foods and therefore did not come under the definition of 'food additive'. It was understood that substances other than liquid solvents would be permitted in the formulation of food colours and flavours provided that such substances appeared in Codex Lists of food additives. The Delegation of the U.S.A. indicated that they would make available to the Joint FAO/WHO Expert Committee on Food Additives, for information, a list of solvents used for inks for marking fruit, confectionery, meat etc.

Extraction Solvents

84. The Committee had before it a paper prepared by the Delegation of Switzerland for the sixth session of the Codex Committee on Cocoa Products and Chocolate (CCFA/69/6; Chococa 69(B)1) containing a list of extraction solvents for use in foods. The Committee agreed to add ethyl acetate, dichloromethane and methanol to the list. The Delegation of the Federal Republic of Germany indicated that in principle they were against the use of chlorinated hydrocarbon solvents as well as methanol and carbon disulphide.
85. The Committee agreed that the list of all the above solvents appearing in Appendix XIV should be sent to governments at Step 3 of the Procedure. Governments were requested to provide information concerning specifications, methods of analysis and toxicological evaluation on these substances. The Committee requested the Joint FAO/WHO Expert Committee on Food Additives to consider the extraction solvents mentioned in Appendix XIV at the earliest possible date.

Acids, Bases and their Salts, Sequestrants

86. The Committee noted that the Delegation of the U.K. had prepared a working paper on acids, buffers, bases and sequestrants for the fourth session of the Committee (CCFA/67/11). At that session governments were requested to comment on the above paper. The Delegation of the U.K. informed the Committee that very few comments had been received. It was pointed out that most of the additives listed in the U.K. paper had been evaluated by the Joint FAO/WHO Expert Committee on Food Additives and appeared in the Secretariat paper CCFA/69/11 prepared for this session. The Committee agreed to consider the above additives when considering paper CCFA/69/11.

Chemical Seasonings (see Appendix XV)

87. The Committee had before it a working paper prepared by the Delegation of Japan (CCFA/69/9; CCFA/69/9 Add.1) containing government comments, and a list of chemical seasonings (CCFA/69/9 Add.2).
88. The Committee noted that many of the proposed chemical seasonings were, in fact, additives used to flavour food or used for other technological purposes. The Committee agreed to restrict this group of additives to "flavour enhancers" which were substances not having significant flavour in themselves but which, when used in conjunction with flavours, acted to bring out, strengthen or enhance such flavours. The Committee agreed to delete cytidylic and uridylic acids from the list since these substances were not used by themselves but were components of commercial preparations of inosinic acid, guanylic acid and 5'-ribonucleotide. The Committee agreed that the list of flavour enhancers be sent to governments at Step 3 of the Procedure (see Appendix XV).

Crystallization Inhibitors

89. The Committee considered a paper prepared by the Delegation of Japan (CCFA/69/9(1)) and agreed to abandon the elaboration of a list of additives falling under this class name, since it was recognised that many additives, such as sequestrants, stabilizers and emulsifiers, could inhibit various crystallization processes. It was concluded that oxystearin, which prevented the crystallization

of certain glycerides in edible oils, could be listed in a 'miscellaneous' group of food additives for the time being.

Anti-oxidants in Essential Oils

90. At the fourth session of this Committee, the Delegation of Switzerland had been requested to prepare a note on 'anti-oxidants in essential oils, used as flavouring materials'. The paper prepared for the fifth session of the Committee was sent to governments for comment. The Committee was informed that very few comments had been received (see CCFA/69/10). It was pointed out that the contribution to the potential intake of anti-oxidants by the use of essential oils in food was not significant.
91. The Committee agreed that this matter should not be pursued further at this time and accepted the offer of the Delegation of the Netherlands to prepare a working document for the next session. This paper would contain a survey of the general problem of carry-over of additives into food.

Food Colours (see Appendix XVI)

92. The Committee noted that the Commission, at its last session, adopted the list of food colours appearing in Appendix VII of ALINORM 69/12, and made it available for the information of Codex Committees as well as governments as an incomplete list of food colours which had been evaluated by the Joint FAO/WHO Expert Committee on Food Additives (see Appendix X, ALINORM 69/67). The Committee agreed to add the food colours evaluated at the last session of the Joint Expert Committee to this list. The Commission was requested to submit the new amended list to governments for comment at Step 6 of the Procedure (see Appendix XVI).

Status Report on and Listing of Food Additives

93. The Committee discussed the paper prepared by the Secretariat on the listing of food additives (CCFA/69/11). It was pointed out that one of the purposes of the document was to give a status report on the toxicological, and chemical evaluation of the various food additives proposed for use by Codex Committees as well as those dealt with by the Joint FAO/WHO Expert Committee on Food Additives. Another purpose of the paper was to attempt to list food additives according to their functional use.
94. The Committee agreed that it would be useful to keep the status report up to date and requested the Secretariat to produce such a list for the next session setting out the food additives in alphabetical order and giving references to the relevant reports, FAS documents and monographs of the Joint FAO/WHO Expert Committee on Food Additives.
95. As regards grouping of food additives, some delegations were of the opinion that this would be difficult in view of the multi-functionality of many food additives. In addition, it was pointed out that, at this stage, any functional groups of food additives which could be drawn up on the basis of the evaluation of the Joint FAO/WHO Expert Committee on Food Additives would be incomplete. On the other hand, it was noted that the Recommended International General Standards for the Labelling of Prepackaged Foods (CAC/RS 1-1969) referred to class titles of food additives which were linked with the functional use of food additives.

96. With respect particularly to List I in paper CCFA/69/H (Acids and their salts) the Committee was of the opinion that this group should be revised since many of the salts listed had multiple functional uses. The Secretariat was requested to draw up groups of food additives in conformity with the class names adopted so far and taking into account lists of food additives so far considered by the Committee.

GENERAL STANDARD FOR THE LABELLING OF FOOD ADDITIVES

97. At a previous session, the Delegation of the U.K. was requested to prepare a draft general standard for the labelling of food additives sold as such on the basis of a paper prepared by the Secretariat (CCFA/67/24) and government comments received. The Delegation of the U.K. indicated that no comments had been received on this subject and, therefore, no paper had been prepared for this session. Delegations were again requested to send their comments on this subject to the Delegation of the U.K. It was pointed out that in drawing up such a document the Recommended International General Standard for the Labelling of Prepackaged Foods (CAC/RS 1-1969) should be taken into consideration since a number of food additives, such as food colours and flavours, were sold prepackaged to the consumer.

CONSIDERATION OF CLASS NAMES FOR FOOD ADDITIVES

98. The Committee had before it a paper prepared by the Secretariat (CCFA/69/14). It was agreed that the list of class names appearing in the Recommended International General Standard for the Labelling of Prepackaged Foods should eventually be enlarged in the light of functional groups of food additives elaborated by this Committee. As regards modified starches, the Committee agreed that for the purposes of listing and label declaration, natural starches, physically modified starches and starches treated with enzymes to remove certain soluble low molecular weight fractions, should not be regarded as being "modified starches" but as food.
99. There was a discussion on the designations "natural", "artificial", "synthetic" and "imitation" flavours. The Committee was divided as regards the need for specific class names for the purpose of label declaration. Some delegations were of the opinion that a distinction should be drawn between natural flavours on the one hand and flavours which were prepared by synthesis and were not known to occur in natural aromatics on the other hand. Other delegations were of the opinion that, while it was necessary to distinguish between these types of flavours, the word "flavour" was sufficient for the purposes of label declaration.
100. It was pointed out that considerable effort was being put into the elaboration of modern techniques to isolate natural flavours and that a distinction should, therefore, be made between such flavour extracts and synthetic preparations imitating them. The Committee agreed to await the list of flavours being drawn up by the Council of Europe and to reconsider this matter at a future session.

ANIMAL FEED ADJUNCTS

- ^{101.} The Committee considered a paper on Animal Feed Adjuncts prepared by the Delegation of Israël (CCFA/69/15). It was stressed that necessary data for the evaluation of some of the substances was not yet available. Delegations were requested to refer the above paper to the interested bodies in their countries for comment. ^{1/}

^{1/} Data should be made available to the Rapporteur, Mr. A. Eisenberg, Ministry of Health Jerusalem, Israël, with copies to the Chief, Joint FAO/WHO Food Standards Programme, FAO. Rome.

102. It was felt that for proper consideration of this subject there will be a need to draw upon special expertise, especially in the field of veterinary medicine. It was decided to refer this problem to the Joint FAO/WHO Expert Committee on Food Additives.
103. The Committee was of the opinion that, in addition to specifications and toxicological evaluation, data would be required (as in the case of antibiotics) of conditions of use (species of animals to be treated, dose administered, withdrawal time, etc.) and the resulting residues in food intended for human consumption.
104. The Committee agreed that hormones, other growth promoting substances and coccidiostats should be given first priority among the animal feed adjuncts by the Joint FAO/WHO Expert Committee when subjecting them to evaluation at a future meeting. Other groups of substances will be submitted for evaluation when sufficient data are available.

ANTIBIOTICS IN FOODS

105. As regards the antibiotics, the WHO Secretariat presented the 12th Report of the Joint FAO/WHO Expert Committee on Food Additives. It was pointed out that, in the light of available toxicological, microbiological and related data concerning the potential hazards caused by antibiotics in food, the Joint Expert Committee had recommended acceptable levels of residues in meat, milk and eggs for a number of antibiotics, with specified methods of analysis. In addition, acceptable daily intakes (ADI) had been established for several antibiotics: an unconditional ADI for nisin, a conditional ADI for pimaricin (for external application to hard cheese) and a temporary ADI for the tetracyclines (for use in the environment of certain foods). The Committee agreed that this report on antibiotics should be referred to governments for comments and information.

SPECIFICATION FOR FOOD ADDITIVES

106. The Committee considered a paper prepared by the Secretariat containing comments from Australia and the Manufacturers of Cellulose Products for Food-stuffs in the European Economic Community (CCFA/69/16). The Committee recalled its decision at the fourth session to elaborate the specifications for food additives, established by the Joint FAO/WHO Expert Committee on Food Additives as Codex Food Additive Standards, according to the Procedure for the Elaboration of Codex Standards (see ALINORM 68/12, para 86).
107. It was pointed out by the Representatives of FAO and WHO that the specifications had been drawn up in co-operation with industry and that the toxicological evaluation had been based on these specifications. In view of the special nature of this problem and in view of the magnitude of the task, the Committee agreed that the Procedure for the Elaboration of Codex Standards should be abandoned with respect to these specifications.
108. It was stressed that the specifications so far established by the Joint Expert Committee should be consolidated into one working document by the Secretariat and that this document should be made available to governments for comment. It was decided that such comments should be considered at the next session and

that, at that time, the Committee would consider what appropriate further action to take.

GENERAL STANDARD FOR COMMERCIAL ENZYME PREPARATIONS

109. The Committee had before it a draft prepared by the Delegation of the Federal Republic of Germany (CCFA/69/17) on the basis of a document prepared for the 1967 session and amended in the light of comments received. In discussing the scope of this General Standard the question was raised as to which enzyme preparations were included in the Standard. It was pointed out that the General Standard may not apply to all enzyme preparations in view of the great differences with regard to the purity, source and functional use of commercial enzymes. This was particularly true of the maximum levels of contaminants proposed. It was noted that the Joint FAO/WHO Expert Committee on Food Additives, in dealing with enzymes, would be drawing up specifications and toxicological evaluation for individual enzyme preparations.
110. The Committee agreed to request government comments on the amended standard for commercial enzyme preparations indicating the enzyme preparations which were used commercially and giving relevant information on chemical and toxicological aspects of these enzyme preparations.

IRRADIATION OF FOOD

111. With respect to food irradiation, the Committee noted that the Codex Alimentarius Commission decided, at its sixth session, that this matter was within the responsibility of this Committee. The WHO Secretariat explained that the Joint FAO/IAEA/WHO Expert Committee on Irradiated Food, which met in April 1969, had assessed the wholesomeness of some irradiated foods. On the basis of available nutritional, toxicological and other relevant data, a temporary acceptance was recommended (for a period of five years) for wheat and wheat products irradiated with doses up to 75,000 rad (for disinfestation) either with gamma radiation (Cobalt-60 and Caesium-137) or electrons of energy levels less than 10 MeV. A similar acceptance was recommended for white potatoes irradiated (for controlling sprouting) with doses up to 15,000 rad with gamma radiation from Cobalt-60 or Caesium-137. No decision was reached on irradiated onions through lack of adequate data.
112. The Committee agreed to send the report of the above Joint Expert Committee to governments for comment specifically on the recommendations of the Expert Committee on irradiated wheat and irradiated potatoes.

OTHER BUSINESS

Sulphur dioxide in wine

113. Professor P. Jaulmes, representing the O.I.V. (Office International de la Vigne et du Vin) informed the Committee of the efforts of the O.I.V. to reduce the level of SO₂ in wine. The Committee also noted the good cooperation between the O.I.V. and FAO/WHO.

New Food Additives referred to the Joint FAO/WHO Expert Committee on Food Additives for evaluation

114. Upon the proposal of the Delegation of Belgium, the Committee agreed to refer ethyl maltol to the Joint Expert Committee for evaluation. The Committee also agreed to a proposal of the Delegation of Denmark that the emulsifier "partial and

complete esters of glycerol and edible fatty acids, of which not more than 10% is thermally oxidized and hydroxylated fatty acids of refined soya bean oil” be referred to the Joint Expert Committee for evaluation. The above two Delegations agreed to supply relevant chemical and toxicological data to the Joint Expert Committee. The Committee also agreed that microcrystalline cellulose be referred to the Joint Expert Committee for evaluation and noted that toxicological and other data had been sent to FAO and WHO by the U.S.A.

List of priorities for the Joint FAO/WHO Expert Committee on Food Additives

115. The Committee was in general agreement with the proposed list of priorities shown in Appendix XVII. It was noted that Groups I and II of these priorities would, as far as possible, be dealt with in 1970 and 1971 respectively by the Joint Expert Committee.

Specifications for substances other than food additives

116. The Committee noted the decision of the sixth session of the Codex Alimentarius Commission that, if the Committee wished to elaborate specifications for substances in Codex Standards which did not come within the definition of “food additives” and not clearly within its terms of reference, the Committee should first seek the approval of the Commission.
117. The Committee agreed to a proposal by the Delegation of the Netherlands to draw up specifications for salt and decided to seek the approval of the Commission.

Listing of food additives in soft drinks

118. The Delegation of Canada, supported by the Delegations of the Federal Republic of Germany, France, Ghana and Italy, proposed to establish a list of food additives in soft drinks. The Committee accepted the offer of the Delegation of Canada to draw up such a list and requested participants to send information on this subject.

Nutritional aspects of food additives

119. The Committee noted the decision of the Commission that a consideration involving the nutritional aspects of food additives should be dealt with by this Committee.

DATE AND PLACE OF NEXT SESSION

120. The Committee agreed that, pending finalisation by the Commission, the dates for the next session should be 12-16 October 1970, possibly in The Hague.

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ENDORSEMENT OF FOOD ADDITIVES IN
CODEX COMMODITY STANDARDS

Appendices II to XI

Explanatory Notes

1. 'Not endorsed' - used in the case of those additives which are waiting evaluation by the Joint Expert Committee on Food Additives, or where no evaluation has been possible for lack of adequate data, or where there is evidence that the substance is not suitable as a food additive.

'Postponed' - used in the case of those additives for which further clarification is required by either the Joint Expert Committee on Food Additives or the Codex Committee on Food Additives or both.
2. Appendices II to XI have been editorially revised using chemical nomenclature in conformity with the specifications established by the Joint Expert Committee on Food Additives. The Secretariat has made a small number of other corrections on the basis of a recheck of Codex Standards, as agreed at the Sixth Session of the Codex Committee on Food Additives.

Appendix II

FOOD ADDITIVES AND CONTAMINANTS IN FRUIT JUICES
(GMP - good manufacturing practice)

<u>Additive or Contaminant</u>	<u>Maximum level</u>	<u>Food</u>	<u>Status</u>	<u>Remarks</u>
Ascorbic acid	limited by GMP	Apricot nectar Peach nectar Pear nectar Apple juice Grape juice	endorsed	
Citric acid	limited by GMP	Apricot nectar Peach nectar Pear nectar	endorsed	
Clarifying agents and filtration aids:				
Clarifying enzymes	limited by GMP	Apple juice Grape juice	temporarily endorsed	see para 7
Edible gelatine	limited by GMP	Apple juice Grape juice	endorsed	see para 7
Bentonite				
Silicon dioxide (colloidal solution of silica)				
Tannin		Grape juice Apple juice	not endorsed	pending toxicological evaluation by Joint Expert Committee
Asbestos	limited by GMP			
Diatomaceous earth (diatomite Kieselguhr)	limited by GMP	Apple juice Grape juice	endorsed	see para 7
Cellulose	limited by GMP	Apple juice Grape juice	endorsed	see para 7
Vegetable carbon	limited by GMP	Apple juice Grape juice	endorsed	see para 7
Malic acid	limited by GMP	Apricot nectar Peach nectar Pear nectar	endorsed	
Sulphur dioxide	50 mg/kg total SO ₂ ¹⁷	Grape juice	endorsed	
	10 mg/kg total SO ₂	Apple juice	endorsed	

Arsenic (As)	0.2 mg/kg	Apricot nectar Peach nectar Pear nectar Apple juice Orange juice Grape juice Tomato juice Lemon juice Grapefruit juice	endorsed	
Copper (Cu)	5 mg/kg	Apple juice Orange juice Grape juice Lemon juice Grapefruit juice Tomato juice Apricot nectar Peach nectar Pear nectar	endorsed	
Lead (Pb)	0.3 mg/kg	Apricot nectar Peach nectar Pear nectar Apple juice Orange juice Grape juice Tomato juice Lemon juice Grapefruit juice	temporarily- endorsed	
Tin (Sn)	[250 mg/kg]	Apricot nectar Peach nectar Pear nectar Apple juice Orange juice Grape juice Tomato juice Lemon juice Grapefruit juice	postponed	Referred to Commodity Committees for reduction of levels (see para 4)
Zinc (Zn)	5 mg/kg	Apple juice Orange juice Lemon juice Grapefruit juice Grape juice Tomato juice Apricot nectar Peach nectar Pear nectar	endorsed	
Iron (Fe)	15 mg/kg	Apricot nectar Peach nectar Pear nectar		
	10 mg/kg	Apple juice	endorsed	

	15 mg/kg	Orange juice Grape juice Tomato juice Lemon juice Grapefruit juice		
Total metal content precipitable by potassium hexacyano-ferrate (II)	20 mg/kg expressed as Fe	Apricot nectar Peach nectar Pear nectar Orange juice Lemon juice Grapefruit juice	endorsed	
	17 mg/kg expressed as Fe	Grape juice Tomato juice		
	12 mg/kg expressed as Fe	Apple juice		
Mineral impurities insoluble in 10% HCl	20 mg/kg	Apple juice Grape juice	endorsed see	para 8
	25 mg/kg	Tomato juice		

^{1/} After an interval of three years from the date of publication of this Standard for acceptance by governments, this figure will be reduced to 10 mg/kg.

FOOD ADDITIVES IN MEAT PRODUCTS
(GMP = good manufacturing practice)

<u>Additive</u>	<u>Maximum level</u>	<u>Food</u>	<u>Status</u>	<u>Remarks</u>
Agar	Limited by GMP	Canned hams	endorsed	-
Alginates, K and/ or Na salts	Limited by GMP	Canned hams	endorsed	-
Ascorbic acid and sodium salt Iso-ascorbic acid and sodium salt	500 mg/kg expressed as ascorbic acid singly or in combination	Canned chopped meat Canned hams Canned luncheon meat	endorsed	-
Artificial flavourings, essences and extracts (to be specified)	maximum levels to be specified	Canned hams Canned luncheon meat Canned chopped meat	postponed	referred to Commodity Committee (see para 11)
Carrageenan	limited by GMP	Canned hams	endorsed	-
Cyclamate, Ca and/or Na salts	maximum level to be specified	Canned hams	postponed	Additional information required (see para 12)
Guanylic acid, sodium salt	[500 mg/kg expressed as guanylic acid]	Canned hams Canned luncheon meat Canned chopped meat	not endorsed	referred to Joint Expert Committee
Inosinic acid, sodium salt	[500 mg/kg expressed as inosinic acid]	Canned hams Canned luncheon meat Canned chopped meat	not endorsed	referred to Joint Expert Committee
Monosodium glutamate	limited by GMP	Canned hams Canned luncheon meat Canned chopped meat	postponed	referred to Joint Expert Committee
Nitrate, K and/ or Na salts	500 mg/kg expressed as sodium nitrate	Canned hams Canned corned beef. Canned luncheon meat Canned chopped meat	temporarily endorsed	see paras 9 and 10

Nitrite, K and/ or Na salts	200 mg/kg total nitrite expressed as sodium nitrite	Canned hams Canned corned beef Canned luncheon meat Canned chopped meat	Temporarily endorsed	see paras 9 and 10
Sodium citrate	limited by GMP	Canned luncheon meat Canned hams Canned chopped meat	endorsed	-
Sodium and potassium phosphates (mono-, di- and poly-)	3000 mg/kg expressed as P ₂ O ₅ may be added to the raw material singly or in combination	Canned hams Canned luncheon meat Canned chopped meat	endorsed	see para 64

Appendix IV

FOOD ADDITIVES IN QUICK-FROZEN FOODS
(GMP = good manufacturing practice)

<u>Additive</u>	<u>Maximum level</u>	<u>Food</u>	<u>Status</u>	<u>Remarks</u>
Ascorbic acid Citric acid	400 mg/kg singly or in combination	Quick frozen Strawberries (sliced and halved)	endorsed	
Natural flavourings as defined in the Codex Alimentarius and their identical synthetic equivalents	limited by GMP	Quick frozen peas	Temporarily endorsed	see para 13

FOOD ADDITIVES IN FUNGUS PRODUCTS
(GMP = good manufacturing practice)

<u>Additive</u>	<u>Maximum level</u>	<u>Food</u>	<u>Status</u>	<u>Remarks</u>
Acetic acid	limited by GMP	General Standard for Fungi and Fungus Products	endorsed	see para 14
Lactic acid				
Citric acid				
Ascorbic acid				
Citric acid	0.5% m/m	Sterilized fungi	endorsed	
Lactic acid	individually or in combination			
Acetic acid	2% m/m	Pickled fungi	endorsed	

Appendix VI

FOOD ADDITIVES AND CONTAMINANTS IN SUGARS

<u>Additive or Contaminant</u>	<u>Maximum level</u>	<u>Food</u>	<u>Status</u>	<u>Remarks</u>
Arsenic (As)	1 mg/kg	Dextrose Anhydrous Dextrose Monohydrate Glucose Syrup Dried Glucose Syrup Lactose Soft Sugars (specifications A and B) White Sugar Powdered Sugar	endorsed	
Copper (Cu)	2 mg/kg	Dextrose Anhydrous Dextrose Monohydrate Lactose White Sugar Powdered Sugar	endorsed	
	5 mg/kg	Glucose Syrup Dried Glucose Syrup	endorsed	
	10 mg/kg	Soft Sugars (specifications A and B)	endorsed	
Lead (Pb)	2 mg/kg	Dextrose Anhydrous Dextrose Monohydrate Glucose Syrup Dried Glucose Syrup Lactose Soft Sugars (specifications A and B) White Sugar Powdered Sugar	temporarily endorsed	

Sulphur dioxide	20 mg/kg	Dextrose Anhydrous Dextrose Monohydrate White Sugar (specification A) Powdered Sugar	endorsed
	40 mg/kg	Soft Sugars (specifications A and B) Glucose Syrup Dried Glucose Syrup]	endorsed
	70 mg/kg	White Sugar (Specification B)	endorsed
Sulphur dioxide	150 mg/kg	Dried Glucose Syrup for the manufacture of sugar confectionery only	endorsed
	400 mg/kg	Glucose Syrup, for the manufacture of sugar confectionery only	endorsed

Anticaking agents:

Calcium silicate
Dehydrated silicagel (silicon dioxide amorphous)
Magnesium stearate
Magnesium trisilicate
Tricalcium monophosphate
Sodium aluminosilicate
Sodium calcium aluminosilicate
Magnesium carbonate

1. 5% m/m singly or in combination

Powdered Sugar

endorsed

Specification needed for sodium calcium aluminosilicate, see para, 15

Appendix VII

FOOD ADDITIVES AND CONTAMINANTS IN COCOA PRODUCTS AND CHOCOLATE

(GMP = good manufacturing practice)

<u>Additive or Contaminant</u>	<u>Maximum level</u>	<u>Food</u>	<u>Status</u>	<u>Remarks</u>
<u>Alkalizing Agents</u>				
Ammonium carbonate ^{1/}		Cocoa beans		
Ammonium hydrogen-carbonate		Cocoa nib		
Ammonium hydroxide		Cocoa mass		
Magnesium carbonate	5% m/m singly or in combination expressed as anhydrous K ₂ CO ₃ on a fat free basis	Cocoa presscake	endorsed see	para 16
Magnesium hydroxide		Cocoa powder		
Potassium carbonate		Fat-reduced Cocoa powder		
Potassium hydrogen carbonate		Sweetened Cocoa powder		
Potassium hydroxide		Sweetened fat-reduced Cocoa powder		
Sodium carbonate				
Sodium hydrogen carbonate				
Sodium hydroxide				
<u>Emulsifiers</u>				
Ammonium salts of phosphatidic acids	0.7 m/m *	Individual standards for Chocolate Cocoa powder Sweetened cocoa powder Fat-reduced cocoa powder Sweetened fat-reduced cocoa powder	temporarily endorsed	
Lecithin	0.5% m/m of the acetone insoluble	Individual standards for Chocolate	endorsed	

	component lecithin * 1% m/m of the acetone insoluble component of lecithin *	Cocoa powder Sweetened cocoa powder Fat-reduced cocoa powder Sweetened fat- reduced cocoa Powder	endorsed	
Mono- and di- glycerides of edible fatty acids *	1.5% m/m*	Individual standards for Chocolate	endorsed	
<u>Flavouring agents</u>				
Vanillin Ethyl vanillin	in small amounts for flavour adjustment	Cocoa products and Chocolate except Cocoa butters	endorsed	
Natural flavours, as defined in the Codex Alimentarius, and their synthetic equivalents, other than those which would imitate natural chocolate or milk flavours	limited by GMP	Cocoa beans Cocoa nib Cocoa mass Cocoa presscake Cocoa powder Fat-reduced cocoa powder Sweetened cocoa powder Sweetened fat- reduced cocoa powder	temporarily endorsed	
<u>Neutralizing agents</u>				
[Phosphoric acid (expressed as P ₂ O ₅)]	0.5% m/m singly or in combination	Cocoa beans Cocoa nib Cocoa presscake Cocoa powder Fat-reduced cocoa powder Sweetened cocoa Powder Sweetened fat- reduced cocoa powder	postpone	Referred to Commodity Committee for confirmation of tentative proposal
Citric acid L-tartaric acid			endorsed endorsed	
<u>Contaminants</u>				
Copper	[0.4 mg/kg]	Cocoa Products and Chocolate	Postponed	See para 18

Arsenic	[1 mg/kg]	Cocoa Products and Chocolate
Iron	[0.5 mg/kg]	Cocoa Products and Chocolate
Lead	[2 mg/kg]	Cocoa Products and Chocolate
	[5 mg/kg calculated on the fat-free dry Matter]	Individual Standards for Cocoa powder

^{1/} The Specification (FAS//13, SP 10/50) covers the mixture of ammonium hydrogen carbonate and ammonium carbonate in varying proportions.

* See over

* Total amount of emulsifiers not more than 1.5% m/m

FOOD ADDITIVES IN FISH AND FISHERY PRODUCTS
(GMP – good manufacturing practice)

<u>Additive</u>	<u>Maximum level</u>	<u>Food</u>	<u>Status</u>	<u>Remarks</u>
Monophosphate, monosodium or monopotassium (Na or K ortho-phosphate)	0.5% m/m of the final product expressed as P ₂ O ₅ , singly or in combination	Frozen fillets of cod and haddock	endorsed	see para 64
Diphosphate, tetra-sodium or tetra-potassium (Na or K pyrophosphate)		Frozen fillets of ocean perch		
Triphosphate, penta-sodium or penta-potassium or calcium (Na, K or Ca tri-polyphosphates)		Frozen fillets of plaice		
Polyphosphate, sodium (Na hexa-metaphosphate)				
Ascorbate, potassium or sodium salts	1000 mg/kg of the final product, expressed as ascorbic acid	Frozen fillets of cod and haddock Frozen fillets of ocean perch Frozen fillets of Plaice	endorsed	
Beta-carotene Tartrazine (CI 19140) Amaranth (CI 16185) Sunset Yellow FCF (CI 15985)			endorsed	
Erythrosine (CI 45430) Ponceau 4R (CI 16255) Orange GGN (15980) Ponceau 6R (CI 16290) Azo-rubine (CI 14720)	30 mg/kg of the final product individually or in combination	Canned shrimps and prawns	temporarily endorsed	referred to Joint Expert Committee for evaluation
			not endorsed	

Mono-sodium glutamate	850 mg/kg of the final product	Canned shrimps and prawns	postponed	see para 19
Calcium disodium EDTA	250 mg/kg of the final product	Canned shrimps and prawns	endorsed	
Citric acid	limited by GMP	Canned shrimps and prawns	endorsed	
Orthophosphoric acid	850 mg/kg of the final product	Canned shrimps and prawn	temporarily endorsed	

FOOD ADDITIVES AND CONTAMINANTS IN FATS AND OILS
(GMP = good manufacturing practice)

Key to commodities:

- Fats and Oils (General Standard) - General Standard for Fats and Oils not covered by individual Codex Standards
- Fats - Lard, rendered pork fat, premier jus, edible Tallow
- Oils - Soyabean oil, arachis oil, cottonseed oil, sunflower-seed oil, rapeseed oil, maize oil, sesameseed oil, safflowerseed oil, mustadseed oil, but not including olive oil

<u>Food Additive</u>	<u>Maximum level</u>	<u>Food</u>	<u>Status</u>	<u>Remarks</u>
Beta-carotene	limited by GMP ^{1/}	Fats and Oils (Gen.Std) Oils Margarine	endorsed	
Annatto extracts	limited by GMP ^{1/}	Fats and Oils (Gen.Std) Oils Margarine	temporarily endorsed	
Curcumin	limited by GMP ^{1/}	Fats and Oils (Gen.Std) Oils Margarine	temporarily endorsed	Referred to Joint Expert Committee see para 21
Canthaxanthine	limited by GMP ^{1/}	Fats and Oils (Gen.Std) Oils Margarine	endorsed	
Beta-apo-8-carotenal	limited by GMP ^{1/}	Fats and Oils (Gen.Std) oils Margarine	endorsed	
Beta-apo-8'- carotenoio acid, methyl and ethyl esters	limited by GMP ^{1/}	Fats and Oils (Gen.Std) oils Margarine	endorsed	
Natural flavours, as defined in the Codex Alimentarius f and their identical synthetic equivalents, and synthetic flavours appearing in the Codex list	limited by GMP	Margarine	temporarily endorsed	see paras 22-25

Natural flavours, as defined in the Codex Alimentarius, their identical synthetic equivalents and synthetic flavours appearing in the permitted Codex list	limited by GMP as agreed by the Codex Alimentarius Commission (see para 25)	Fats and Oils (General Standard) Oils	temporarily endorsed	see paras 22-25
Mono- and diglycerides of fatty acids	limited by GMP	Fats and Oils (Gen.Std Margarine)	endorsed	
Mono- and diglycerides of fatty acids esterified with acetylcitric orthophosphoric acids and their Na and Ca Salts	2% m/m *	Fats and Oils (General Standard)	not endorsed	
Mono- and diglycerides of fatty acids esterified with acetic, acetyltartaric, citric, lactic, tartaric acids and their Na and Ca salts	2% m/m * 1% m/m	Fats and Oils (General Standard) Margarine	endorsed	
Lecithins (and components) of commercial lecithin)	2% m/m * limited by GMP	Fats and Oils (Gen.Std Margarine)	endorsed	
Polyglycerol esters of fatty acids	2% m/m * 0.5% m/m.	Fats and Oils (Gen.Std) Margarine	endorsed	
Esters of fatty acids With polyalcohols other than glycerol: sorbitan monopalmitate sorbitan monostearate sorbitan tristearate	2% m/m,* 1% m/m	Fats and Oils (General Standard) Margarine	endorsed	
1,2-propylene glycol esters of fatty acids	2% m/m *	Fats and Oils (Gen.Std) Margarine	endorsed	
Sucrose esters of fatty acids (including sucroglycerides)	2% m/m * 1% m/m	Fats and Oils (General Standard) Margarine	temporarily endorsed	see para 26

Stearoyl lactic acid Ca salt	2% m/m *	Fats and Oils (General Standard)	temporarily endorsed	
Polyglycerol esters of interesterified ricinoleic acid	2% m/m *	Fats and Oils (General Standard)	temporarily endorsed	
Polyoxyethylene sorbitan monostearate	2% m/m *	Fats and Oils (General Standard)	endorsed	
Polyoxyethylene sorbitan monooleate	2% m/m *	Fats and Oils (General Standard)	endorsed	
Gallates, propyl octyl. dodecyl isoamyl	100 mg/kg individually or in combination	Fats and Oils (Gen.Std) Oils Fats	endorsed	
			not endorsed	referred to Joint Expert Committee
BHT, BHA	200 mg/kg individually or in combination	Fats and Oils (Gen.Std) Fats Oils	endorsed	
Any combination of Gallates with BHA or BHT or both, maximum 200 mg/kg but Gallates not to exceed 100 mg/kg				
Gallates, propyl octyl dodecyl	100 mg/kg individually or in combination	Margarine	endorsed	
BHT, BHA Ascorbyl palmitate	200 mg/kg individually or in combination	Fats and Oils (Gen.Std) Oils Fats Margarine	endorsed	see para 27
Sorbic acid and Na, K and Ca salts Benzoic acid and Na and K salts	1000 mg/kg individually or in combination expressed as the acids	Margarine	endorsed	
Natural and synthetic tocopherols	limited by GMP	Fats and Oils (Gen.Std) Oils Fats Margarine	endorsed	
Ethyl protocatechuate	200 mg/kg	Fats and Oils (Gen.Std) Oils Fats	not endorsed	Referred to Joint Expert Committee

Dilauryl thiodi-propionate	200 mg/kg	Fats and Oils (Gen.Std) Oils Fats	endorsed	
NDGA	100 mg/kg	Fats	not endorsed	Referred to Joint Expert Committee
Resin guaiac	1000 mg/kg	Fats	not endorsed	
Citric acid and its sodium salt	limited by GMP	Fats and Oils (Gen.Std) Oils Fats	endorsed	see para 28
Citric acid and its sodium or potassium salts	limited by GMP	Margarine	endorsed	
Lactic acid and its sodium or potassium salts	limited by GMP	Margarine	endorsed	
L-tartaric acid and its sodium or sodium-potassium salts	limited by GMP	Margarine	endorsed	see para 29
Sodium hydrogen carbonate, carbonate or hydroxide	limited by GMP	Margarine	endorsed	
Isopropyl citrate mixture	100 mg/kg	Fats and Oils (Gen.Std) Oils Margarine Fats	endorsed	see para 30
Phosphoric acid	100 mg/kg	Fats and Oils (Gen.Std) Oils Fats	temporarily endorsed	see para 63
Monoglyceride citrate	100 mg/kg	Oils Fats	endorsed	
Dimethyl polysiloxane with or without silicon dioxide	10 mg/kg	Fats and Oils (General Standard) Oils	temporarily endorsed	see para 31
Oxystearin	0.125% m/m	Fats and Oils (Gen.Std) Oils	temporarily endorsed	
Iron (Fe)	1.5 mg/kg (refined fats and oils)	Fats and Oils (Gen.Std) Oils Fats Margarine	endorsed	

	5 mg/kg (virgin oils)	Fats and Oils (Gen.Std) Arachis oil Sunflowerseed oil Rapeseed oil Maize oil Sesameseed oil Mustardseed oil	endorsed	
Copper (Cu)	0.1 mg/kg (refined fats and oils)	Fats and Oils (Gen.Std) Oils Margarine	endorsed	
	0.4 mg/kg (virgin oils)	Fats and Oils (Gen.Std) Arachis oil Sunflowerseed oil Rapeseed oil Maize oil Sesameseed oil Mustardseed oil Fats	endorsed	
Lead (Pb)	0.1 mg/kg	Fats and Oils (Gen.Std) Oils Fats Margarine	endorsed	
Arsenic (As)	0.1 mg/kg	Fats and. Oils (Gen.Std) Oils Fats Margarine	endorsed	
Solvent residues	none	Refined residue olive oil	postponed	More information is required see paras 32-34

^{1/} The Codex Alimentarius Commission, at its sixth session, agreed to a text to be inserted in the Standards for Fats and Oils to limit the amount of colouring agent which may be added, see para 146, ALINORM 69/67

* Individually or in combination

Appendix X

FOOD ADDITIVES AND CONTAMINANTS IN PROCESSED
FRUITS AND VEGETABLES

(GMP = good manufacturing practice)

<u>Additive and Contaminant</u>	<u>Maximum level</u>	<u>Food</u>	<u>Status</u>	<u>Remarks</u>
Acetic acid	limited by GMP	Canned tomatoes	endorsed	
		Canned asparagus		
Citric acid	limited by GMP	Canned tomatoes	endorsed	
		Canned applesauce		
		Canned grapefruit		
		Canned sweetcorn		
		Canned asparagus		
		Canned mushrooms		
		Canned strawberries		
		Canned raspberries		
		Canned pineapple		
		Canned pears		
		Canned mandarin		
		Oranges		
	To maintain the pH at a level not above 4.3	Processed tomato concentrate		
Lactic acid	limited by GMP	Canned tomatoes	endorsed	see para 35
		Canned strawberries		
		Canned raspberries		
		Canned pears		
	To maintain the pH at a level not above 4.3	Processed tomato concentrate		
Malic acid	limited by GMP	Canned tomatoes	endorsed	see para 35

		Canned applesauce Canned asparagus Canned strawberries Canned raspberries Canned pears		
	To maintain the pH at a level not above 4.3	Processed tomato concentrate		
L-Tartaric acid	limited by GMP	Canned tomatoes Canned strawberries Canned raspberries Canned pears Canned asparagus	endorsed	
	To maintain the pH at a level not above 4.3	Processed tomato concentrate		
<u>Calcium chloride or other calcium salts</u>	350 mg/kg Ca derived from added Ca salts	Canned tomatoes Canned Green Garden Peas	endorsed	Information is requested from the Codex Committee on Processed Fruits and Vegetables as to which other Ca salts are meant (see para 36)
Calcium chloride and/or lactate	350 mg/kg Ca derived from added Ca salts	Canned grapefruit	endorsed	
Stannous chloride	25 mg/kg calculated as Sn	Canned asparagus in glass or fully enamel-lined, (lacquered) Containers	postponed	Pending evaluation by Joint Expert Committee (see para 49)
Cupric sulphate	100 mg/kg	Canned Green	postponed	Pending

	calculated as Cu]	Garden Peas		evaluation by Joint Expert Committee and confirmation by the Commodity Committee (see para 49)
Sodium hydrogen carbonate	to raise the Ph to a level not above 4.3	Processed tomato concentrates	endorsed	
Amylose Amylopectin Dextrins, white and yellow Enzyme-treated starch	see over	Canned green and wax beans Canned sweetcorn ^{2/} Canned asparagus ^{1/} Canned green garden peas ^{2/}	endorsed	see para 98
<u>Modified starches:</u>				
Acid-treated starches Alkali-treated starches Bleached starches Distarch, phosphate (sodium trimetaphosphate treated) Distarch phosphate, phosphated Monoatarch phosphate Starch acetate Starch, hydroxypropyl Distarch, adipate, acetylated Distarch glycerol, hydroxypropyl Oxidized starches	1% m/m singly or in combination	Canned green and wax beans Canned sweetcorn ^{2/} Canned asparagus ^{1/} Canned green garden peas ^{2/}	endorsed	see para 37
			temporarily endorsed	see para 37

Starch sodium succinate
 Distarch phosphate (phosphorus oxychloride treated)
 Distarch phosphate, acetylated
 Distarch phosphate, hydroxypropyl
 Distarch glycerol, acetylated
 Distarch glycerol

Vegetable gums

Arabic gum
 Carrageenan
 Furcellaran
 Guar gum

Alginates (Ca, K, Na, NH₄)

Propylene glycol alginate

not endorsed

Canned green and wax beans
 Canned sweetcorn ^{2/}
 Canned asparagus ^{1/}
 Canned green garden peas ^{2/}
 Canned mushrooms ^{2/}

temporarily endorsed

see paras 38 and 39

^{1/} To be used only when packed in sauces

^{2/} To be used only when butter is an ingredient

Monosodium glutamate

limited by GMP

Canned green and wax beans
 Canned sweetcorn
 Canned asparagus
 Canned green garden peas
 Canned mushrooms

endorsed

see para 41

postponed

see paras 40-41

Natural flavours as defined in the Codex Alimentarius and their identical synthetic equivalents

limited by GMP

Canned peaches
 Canned applesauce
 Canned grapefruit
 Canned plums
 Canned pears]
 Canned pineapple

temporarily endorsed

see para 43

Natural fruit essence	limited by GMP	Canned pineapple Canned pears Canned peaches Canned- fruit cocktail.	endorsed	
Mint flavour (mint oil)	limited by GMP	Canned pineapple	endorsed	
Artificial flavoubrs	limited by GMP	Canned fruit-cocktail (cherries only)	postponed	referred to Commodity Committee (see para 48)
Caramel (as a colouring agent)	limited by GMP	Canned mushrooms	not endorsed	pending evaluation by Expert Committee
Ascorbic acid Iso-ascorbic acid (erythorbic acid)	150 mg/kg singly or in combination	Canned applesauce		
Ascorbic acid	limited by GMP	Canned mushrooms Canned asparagus	endorsed	
EDTA (calcium disodium salt)	200 mg/kg	Canned mushrooms	endorsed	
Benzoic acid or Na salt	1000 mg/kg	Processed tomato concentrates (glass packed puree not over) 15% solids)	endorsed	
Sortie acid	1000 mg/kg	Processed tomato concentrates (glass packed puree not over] 15% solids)	endorsed	
Erythrosine	200 mg/kg singly or in combination	Canned applesauce	temporarily endorsed	see para 44
Amaranth	^{1/}		endorsed	
Fast Green FCF			endorsed	
Sunset Yellow FCF			endorsed	
Tartraaine			endorsed	
Brilliant Blue FCF			endorsed	

Indigotine FCF			temporarily endorsed	
Amaranth			endorsed	
Erythrosine	200 mg/kg s	Canned pears	temporarily endorsed	
Past Green FCF	singly or in combination		endorsed	
Wool Green BS			temporarily endorsed	
Erythrosine	limited by GMP (to colour cherries only)	Canned fruit cocktail	temporarily endorsed	
Wool Green BS	100 mg/kg singly or in combination	Canned green and wax beans	temporarily endorsed	
Tartrazine		Canned green garden peas	endorsed	
Brilliant Black BN	100 mg/kg	Canned mushrooms	not endorsed	see para 47
Ponceau 4R	150 mg/kg singly or in combination	Canned 'Red' or 'Purple' plums	temporarily endorsed	
Erythrosine				
Ponceau 4R	150 mg/kg	Canned raspberries	temporarily endorsed	
Ponceau 4R	300 mg/kg singly or in combination	Canned strawberries	temporarily endorsed	
Erythrosine				
Sulphur dioxide	2000 mg/kg	Raisins	postponed	referred to Commodity Committee requesting clarification (see para 45)
[Methyl cellulose	10 mg/kg]	Canned mandarin oranges	postponed	pending confirmation by Commodity Committee
Mineral oil	0.5% by weight	Raisins	not endorsed	referred to Joint Expert Committee, see para 46

^{1/} See para 36, ALINORM 70/20

<u>Additive and Contaminant</u>	<u>Maximum level</u>	<u>Food</u>	<u>Status</u>	<u>Remarks</u>
Dimethylpolysiloxane	10 mg/kg	Canned pineapple	temporarily endorsed	
Tin (Sn)	150 mg/kg calculated as Sn	Canned asparagus (in tinned containers) Canned pineapple Canned pears Canned mandarin oranges Processed tomato concentrates ^{1/}	endorsed	referred to Commodity Committee to consider reduction of level from 250 to 150 (see para 50)

^{1/} In the final concentrated, product

Appendix XI

FOOD ADDITIVES IN MILK AND MILK PRODUCTS
(GMP = good manufacturing practice)

Key to commodities:

- | | | |
|------------------------------------|---|---|
| <u>Process(ed) Cheese Products</u> | – | See Draft General Standards A-8(a), A-8(b) and A-8(o) Appendix V, Report No. CX 5/70, 12th session, August 1969. |
| <u>Cheese</u> | – | Individual standards for cheese, including cottage cheeses, whey cheeses. |
| <u>Condensed Milk</u> | – | Standards for Sweetened Condensed Milk, Skimmed Sweetened Condensed Milk. |
| <u>Milk Powder.</u> | – | Standards for Whole Milk Powder, Partly Skimmed Milk Powder, Skimmed Milk Powder, High-Pat Milk Powder, Cream Powder. |
| <u>Evaporated Milk</u> | – | Standards for Evaporated Milk, Evaporated Skimmed Milk. |
| <u>Butter</u> | – | Standards for Butter and Whey Butter. |

<u>Additive</u>	<u>Maximum level</u>	<u>Food</u>	<u>Status</u>	<u>Remarks</u>
Annatto extracts	limited by GMP	Butter	temporarily endorsed	see para 51
		Process(ed) cheese products		
Beta-carotene	600 mg/kg limited by GMP	Cheese	endorsed	
		Butter		
Curcumin	600 mg/kg limited by GMP	Process(ed) cheese products	temporarily endorsed	see paras 21 and 51
		Cheese		
Smoke and condensed smoke	-	Butter	not endorsed	
Chlorophyll	limited by GMP	Cheese	endorsed	
		Process(ed) cheese products		
Chlorophyll Copper complex	limited by GMP	Cheese	endorsed	
Calcium chloride	200 mg/kg of the milk used limited by GMP	Cheese	endorsed	
		Process(ed) cheese products		

Cupric sulphate	15 mg/kg expressed as Copper	Emmentaler cheese	postponed	referred to Joint Expert Committee
Chlorate, sodium and potassium	100 mg/kg in the cheese	Emmentaler cheese	not endorsed	see para 53
Nitrate, sodium and Potassium	200 mg/kg of the milk used	Cheese	postponed	referred to Committee of Government Experts for more information (see para 54)
Riboflavin (lactoflavin)	limited by GMP	Cheese Process(ed) cheese products	endorsed	
Sodium dihydrogen Phosphate and di-sodium hydrogen Phosphate	limited by GMP	Cheese	postponed	Committee of Government Experts to propose limits (see para 56)
Hexamethylene-tetramine	600 mg/kg of the liquid used to work the curd	Provolone cheese	not endorsed ^{1/}	
Fast Green FCF Brilliant Blue FCF Indigotine FCF	limited by GMP to neutralize any natural yellow colour of the curd	Provolone cheese Blue cheese	postponed	referred to Committee of Government Experts to propose limits
Lactic acid	limited by GMP 4% m/m	Cottage cheese Process(ed) cheese products	endorsed	
Citric acid	limited by GMP 4% m/m	Cottage cheese Process(ed) cheese products	endorsed	

^{1/} see Report of the eighth session, Joint Expert Committee on Food Additives

<u>Additive and Contaminant</u>	<u>Maximum level</u>	<u>Food</u>	<u>Status</u>	<u>Remarks</u>
Phosphoric acid	limited by GMP 4% m/m	Cottage cheese Process(ed) cheese products	postponed	referred to Committee of Government Experts for additional information (see para 57)
Caseinates (Na, NH ₄ , Ca, K)	3% m/m of the <u>creaming mixture</u> singly or in any combination	Cottage cheese	temporarily endorsed	pending establishment of specifications by the Joint Expert Committee
<u>Stabilizers:</u> Carrageenan Furcelleran Carob bean gum Karaya gum Tragacanth gum			endorsed endorsed not endorsed not endorsed not endorsed not endorsed	see para 53
Guar gum			temporarily endorsed	
Sodium carboxymethyl cellulose	0.5% m/m of <u>The creaming mixture</u> singly or in combination	Cottage cheese	endorsed	
Lecithin			endorsed	
Alginic acid or K or Na salts			endorsed	
Propylene glycol alginate			temporarily endorsed	
Calcium sulphate			endorsed	
Carriers for stabilizer;				
Glycerin			endorsed	
1,2-propylene glycol			endorsed	

Sodium and calcium salts of: hydrochloric, citric, carbonic, o-phosphoric, poly-phosphoric acids (linear with a chain length of up to 6 units)	0.2% m/m of the final product calculated as anhydrous substances, singly or in combination	Condensed milk	endorsed	see para 59
Sodium and calcium salts of: hydrochloric, citric, carbonic, o-phosphoric, poly-phosphoric acids (linear with a chain length of up to 6 units)	0.5% m/m of the final product calculated as anhydrous substances, singly or in combination.	Milk powder Evaporated milk High-fat milk powder Cream powders	endorsed	see paras 59 and 60
Gallates, propyl, octyl and dodecyl BHT, BHA	200 mg/kg individually or in combination, Gallates not to exceed 100 mg/kg	Butter fat not for direct consumption nor for use in making reconstituted milk or I milk products	endorsed	see para 61
Sodium, sodium-aluminium, potassium and calcium salts of mono-, di- and poly-phosphoric acids Sodium, potassium and calcium salts of citric acid Citric acid and/or phosphoric acid with sodium hydrogen-carbonate and/or calcium carbonate	4% m/m individually or in combination calculated as anhydrous salts, phosphates not to exceed 3% m/m	Process(ed) cheese products	postponed	Referred back to Committee of Government Experts for additional information (para 58)
Oleoresin of paprika	limited by GMP	Process(ed) cheese products	temporarily endorsed	pending the elaboration of specifications by Joint Expert Committee

Calcium carbonate Sodium hydrogen-carbonate	limited by GMP limited by GMP	Process(ed) cheese products	endorsed	
Acetic acid	4% m/m			
Sorbic acid and Na and K salts	1000 mg/kg calculated as sorbic acid	Cheese	endorsed	
Nisin	100 mg/kg of the finished product	Process(ed) cheese products	endorsed	
Sorbic acid and Na and K salts	2000 mg/kg of the finished product *	Process(ed) cheese products	postponed	Referred to Committee of Government Experts (see para 62)
Propionic acid and Na and Ca salts	3000 mg/kg of the finished product *			

* Mixture of propionic and sorbic acid and their salts not to exceed 2000 mg/kg of the finished product

Locust bean gum Carob bean gum Karaya gum Oat gum Tragacanth gum Guar gum	0.8% m/m of the finished product individually or in combination	Process(ed) cheese food (Draft Standard A-8(o))	not endorsed	
Agar Alginate, sodium Carrageenan Sodium carboxymethyl cellulose Pectin			temporarily endorsed	
Propylene glycol alginate			temporarily endorsed	
Sodium hydrogen-carbonate Calcium carbonate	3% m/m of the acid curd	Harzer Käse	endorsed	
Benzoyl peroxide	limited by GMP	Provolone cheese	postponed	Referred to the Joint Expert Committee and the Committee of Government Experts
Benzoyl peroxide or a mixture of benzoyl peroxide with potassium alum, calcium sulphate and magnesium carbonate	20 mg/kg benzoyl peroxide, other ingredients singly or in combination not more than	Blue cheese	postponed	

six times the
quantity of
benzoyl
peroxide used

(see para
63)

FLOUR TREATMENT AGENTS ^{1/}
(Returned to Step 6 of the Procedure)

^{1/} see paragraphs 77-80

Substance	Proposed treatment level mg/kg
Ascorbic acid	up to 200
Azodicarbonamide	up to 45
Benzoyl peroxide	up to 50 up to 75 for special Purposes
Chlorine dioxide	up to 30 up to 75 for special Purposes
Potassium bromate	up to 50 up to 75 for special Purposes
Sulphur dioxide	limited by good manufacturing Practice
Ammonium persulphate	
Potassium persulphate	
Chlorine	
Ammonium chloride	treatment levels to be established
Acetone peroxide	
L-Cysteine	
Monooalcium monophosphate	

Appendix XII

ANTICAKING AGENTS ^{1/}
(at Step 3 of the Procedure)

^{1/} see paragraph 82

ferrocyanide, calcium

ferrocyanide, potassium

ferrocyanide, sodium

phosphate, calcium, tribasic (tricalcium monophosphate)

phosphate, magnesium, tribasic (trimagnesium monophosphate)

salts of myristic, palmitic and stearic acids with "bases accepted
for food use" ^{2/}

silicates:

silicon dioxide, amorphous (silica aerogel, dehydrated silica gel)

silicic acid (hydrated silica, -ilica gel)

aluminium silicate (kaolin)

calcium silicate

magnesium silicate (talc)

magnesium trisilicate

sodium aluminosilicate

sodium calcium aluminosilicate

^{2/} Note by the Secretariat:

the bases accepted toxicologically by the Joint FAO/WHO Expert Committee on Food Additives are ammonium, potassium, sodium, calcium, magnesium and aluminium

SOLVENTS
(at Step 3 of the Procedure)

- A. CARRIER SOLVENTS ^{1/}
- benzyl alcohol
 - benzyl benzoate
 - butyl acetate
 - butan-1,3-diol
 - castor oil
 - dibutyl sebacate
 - diethyl aether
 - diethylene glycol monoethyl aether
 - ethyl acetate
 - ethanol
 - glycerol
 - glycerol acetates (mono-, di- and tri-)
 - glycerol monödleate
 - isopropanol
 - isopropyl myristate
 - mono- and' di-glycerides of edible fatty acids
 - monoethylens glycol
 - n-propanol
 - propylene glycol, mono- and diacetates
 - 1,2-Propylene glycol
 - triethylcitrate
- B. SOLVENTS FOR EXTRACTION OF FOOD ^{2/}
- acetone
 - carbon disulphide
 - 1,2-dichloroethane
 - dichloromethane
 - ethyl acetate
 - ethanol
 - n-hexane (technical grade)
 - methanol
 - petroleum aether propan-2-ol

1,1,2-trichloroethylene

^{1/}

see paragraph 83

^{2/}

see paragraphs 84-85

Appendix XV

FLAVOUR ENHANCERS^{1/}
(at Step 3 of the Procedure)

L-aspartate, monosodium
diethyl maltol
L-glutamate, L-arginine
L-glutamate, monopotassium
L-glutamate, monosodium
guanylate, calcium
guanylate, disodium
inosinate, calcium
inosinate, disodium
maltol
5-ribonucleotide, calcium
5-ribonucleotide, sodium
L-theanine

^{1/} see paragraphs 87-88

LIST OF FOOD COLOURS
(at Step 5)

<u>Substance</u>	<u>Colour Index Number</u>
Amaranth	16 185
Anatto Extracts *	75 120
Beta-Apo-8' -Carotenal	
Beta-Apo-8'-Carotenoic acid, methyl and ethyl esters	-
Beta-Carotene	-
Brilliant Blue FCF	42 090
Canthaxanthine	-
Chlorophyll	75 810
Chlorophyll copper complex	75 810
Chlorophyllin copper complex, sodium and potassium salts	-
Erythrosine *	45 430
Fast Green FCF	42 053
Indanthrene Blue RS *	69 800
Indigotine *	73 015
Patent Blue V *	42 051
Ponceau 4R *	16 255
Quinoline Yellow *	47 005
Riboflavin	-
Sunset Yellow FCF	15 985
Tartrazine	19 140
Titanium dioxide	77 891
Turmeric *	75 300
Wool Green BS *	44 090

^{1/} Referred to the Codex Alimentations Commission (see para 92)

^{2/} The substances marked with an asterisk have "been given only a temporary ADI by the Joint FAO/WHO Expert Committee on Food Additives.

Appendix XVII

WORK PRIORITIES FOR THE JOINT FAO/WHO EXPERT
COMMITTEE ON FOOD ADDITIVES

<u>Year</u>	<u>Subject</u>	<u>Reference</u>	
1970	General assessment of additives in baby foods		
	Evaluation of food extraction solvents	paras 84-85	
	Estimation of intakes of food additives	paras 68-72	
	Evaluation or re-evaluation of a miscellaneous group of substances		
	– cyclamates	para 12	
	– monosodium glutamate	para 40	
	– phosphoric acid, phosphates	paras 64, 65	
	– Curcumin	para 21	
	– ethyl maltol	para 114	
	– oleoresin of paprika	Appendix XI	
	– caseinates, Na, K, Ca, NH ₄	Appendix XI	
	– stannous chloride tin	para 49	
	– cupric sulphate	para 49	
	– mineral oils	para 46	
1971	– edible gelatin	Appendix II	
	– vegetable carbon		
	– tannin		
	– asbestos		
	Evaluation of enzymes used in food		para 109
	Evaluation of flavour enhancers		paras 87-88
			Appendix XV
	Evaluation of carrier solvents		para 83
			Appendix XIV
	Preliminary evaluation of flavouring substances		paras 22-23
1972 and after	Evaluation of a miscellaneous group of substances:		
	– esters of glycerol and thermally oxidized soy bean fatty acids	para 114	
	– microcrystalline cellulose	para 114	
	– mercury		
1972 and after	Evaluation of flour-treatment agents	paras 77-79	
	Evaluation of trace elements, smoking process, smoke extracts, nitrosamines, aflatoxins, etc.		
	Evaluation of cocidiostats, hormones and other growth stimulators	paras 101-104	
	Evaluation of packaging materials		
	Evaluation of flavouring substances		